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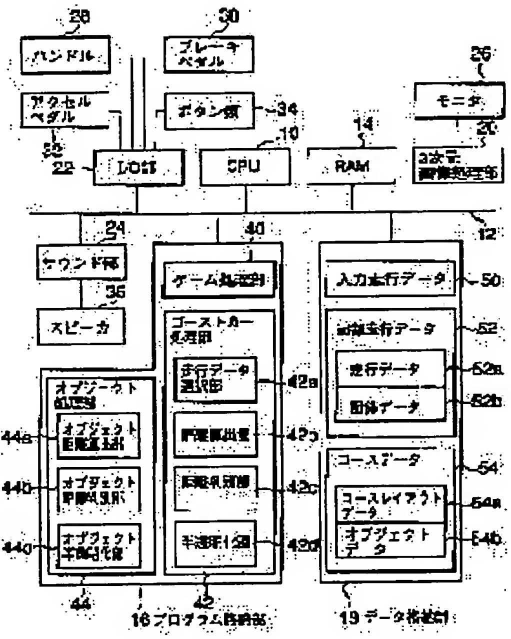
(54) PROBLEM SOLUTION TYPE VEHICLE GAME DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To make a play easily graspable a play state in a simulation image showing a three-dimensional virtual field.
SOLUTION: This device is constituted by having a game processing part 40 making a player's car travel in a simulation image according to input data from an operation system, a ghost car processing part 42 making a ghost car travel together with the player's car in the simulation image based on recording traveling data 52, a distance calculating part 42b calculating the distance in a three-dimensional virtual field of the player's car and the ghost car, a distance judging part 42c judging whether a distance calculated by the distance calculating part 42b is a preliminarily set prescribed value or below or not and a semi- transparentizing part 42d transparentizing the ghost car one in the simulation image when the distance is judged as a prescribed value or below by the distance judging part 42c.


28
ハンドル
30
ブレーキペダル
26
モニタ
アクセルペダル
ボタン類
34
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14
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22
I/O部
CPU
RAM
3次元画像処理部
12
24
サウンド部
36
スピーカ
40
ゲーム処理部
ゴーストカー処理部
走行データ選択部
42a
距離算出部
42b
距離判別部
42c
半透明化部
42d
オブジェクト処理部
44a
オブジェクト距離算出部
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オブジェクト距離判別部
44c
オブジェクト半透明化部
入力走行データ
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52b
コースデータ
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コースレイアウトデータ
54a
オブジェクトデータ
54b
44
42
16 プログラム格納部
19 データ格納部

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CLAIMS

[Claim(s)]

[Claim 1] In the technical-problem solution mold vehicle game equipment which makes it run a vehicle object in the simulation image showing the three-dimension virtual field A game processing means to make it run the 1st vehicle object in a simulation image according to the input data from an actuation system, The ghost car processing means who makes it run the 2nd vehicle object in a simulation image based on the transit data currently prepared beforehand with said 1st vehicle object it runs with said game processing means, A distance calculation means to compute the distance in said three-dimension virtual field of the 1st [said] vehicle object which runs with said game processing means, and said 2nd vehicle object it runs with said ghost car processing means, A distance distinction means to distinguish whether it is below the predetermined value to which the distance computed by said distance calculation means was set beforehand, Technical-problem solution mold vehicle game equipment characterized by having a translucent-ized means to make said 2nd vehicle object it runs with said ghost car processing means translucent-ize in a simulation image when distinguished below a predetermined value by said distance distinction means.

[Claim 2] It is technical-problem solution mold vehicle game equipment according to claim 1 characterized by for said distance distinction means distinguishing the distance of said 1st vehicle object and said 2nd vehicle object in two or more steps, and said translucent-ized means translucent-izing said 2nd vehicle object according to the phase of the distance distinguished by said distance distinction means.

[Claim 3] A data-logging means to record a series of input data used in order for said game processing means to make it run the 1st vehicle object in a simulation image for two or more minutes, From a series of input data for two or more minutes recorded by said data-logging means It has a transit data selection means to choose a series of input data as transit data for displaying said 2nd vehicle object. Said ghost car processing means Technical-problem solution mold vehicle game equipment according to claim 1 characterized by making it run said 2nd vehicle object by using as transit data a series of input data chosen by said transit data selection means.

[Claim 4] It is technical-problem solution mold vehicle game equipment according to claim 1 which the simulation image showing said three-dimension virtual field expresses said field of view from the 1st vehicle object it runs with said game processing means, and is characterized by said distance distinction means distinguishing the distance of said 1st vehicle object and said 2nd vehicle object according to the direction of a field of view from said 1st vehicle object.

[Claim 5] The simulation image showing said three-dimension virtual field The 1st mode in which said field of view from the driver's seat of the 1st vehicle object it runs with said game processing means is expressed, The 2nd mode in which the field of view where said 1st vehicle object it runs with said game processing means is contained is expressed can be switched. Said distance distinction means It responds to whether said 2nd vehicle object is in the simulation image by any in in said 1st mode and said 2nd mode. Technical-problem solution mold vehicle game equipment according to claim 1 characterized by distinguishing the distance of said 1st vehicle object and said 2nd vehicle object.

[Claim 6] An object processing means to change the location fixed object prepared in the transit direction of said 1st vehicle object in a simulation image with transit of said 1st vehicle object by said game processing means, A distance calculation means to compute the distance in said three-dimension virtual field of the 1st [said] vehicle object which runs with said game processing means, and said location fixed object which changes with said object processing means, A distance distinction means to distinguish whether it is below the predetermined value to which the distance computed by said distance calculation means was set beforehand, Technical-problem solution mold vehicle game equipment according to claim 1 characterized by having a translucent-ized means to make said location fixed object which changes with said object processing means translucent-ize in a simulation image when distinguished below a predetermined value by said distance distinction means.
[Claim 7] In the technical-problem solution mold vehicle game equipment which makes it run a vehicle object in the simulation image showing the three-dimension virtual field A game processing means to make it run a vehicle object in a simulation image according to the input data from an actuation system, An object processing means to change the location fixed object prepared in the transit direction of said 1st vehicle object in a simulation image with transit of said 1st vehicle object by said game processing means, A distance calculation means to compute the distance in said three-dimension virtual field of the 1st [said] vehicle object which runs with said game processing means, and said location fixed object which changes with said object processing means, A distance distinction means to distinguish whether it is below the predetermined value to which the distance computed by said distance calculation means was set beforehand, Technical-problem solution mold vehicle game equipment characterized by having a translucent-ized means to make said location fixed object which changes with said object processing means translucent-ize in a simulation image when distinguished below a predetermined value by said distance distinction means.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] Especially this invention relates to the game equipment suitable for a car race game about technical-problem solution mold vehicle game equipment.
[0002]
[Description of the Prior Art] Conventionally, various technical-problem solution mold vehicle game equipments are offered as an arcade mold game currently installed in the game center etc. There is a car race game from which the addition of game time amount, the access which registers the identifier specified as arbitration and transit record are acquired by attaining the predetermined circumference in fixed time amount as such technical-problem solution mold vehicle game equipment, for example.
[0003] It can be made to run the image (player ZUKA) of the self-vehicle displayed all over the three-dimension virtual field on a course in a car race game according to the data inputted with actuation of a handle, an accelerator, a brake, etc. By making it run other vehicle controlled according to the data inputted with actuation of not only player ZUKA but other players simultaneously in the three-dimension virtual field, as the sensation of running a race with other vehicle is acquired, the interest of a player is raised.
[0004]
[Problem(s) to be Solved by the Invention] Conventionally, with the technical-problem solution mold vehicle game equipment which offers a car race game, the same with setting actually objects prepared around the image of a transit car, the transit course, or the course, such as a building and a tree, and it being visible, it was expressing so that all things might have a stereo.
[0005] For this reason, when it constitutes the three-dimension virtual field by the field of view from player ZUKA, a field of view may be barred and expressed by other vehicle and various objects. In the car race game, since it became acquirable [good results] (transit in a short time) by gaining more the surrounding situation of a self-vehicle, the situation (degree of the curve of a course) of the transit direction, etc. early, and performing actuation corresponding to it to timely, a player could not operate being expressed as the field of view was barred satisfactorily, but interest might be dampened.
[0006] This this invention was made in consideration of such a situation, and aims to let a player offer the technical-problem solution mold vehicle game equipment which can grasp a play situation easily.
[0007]
[Means for Solving the Problem] In the technical-problem solution mold vehicle game equipment which makes it run a vehicle object in the simulation image with which this invention expresses the three-dimension virtual field in order to solve said technical problem A game processing means to make it run the 1st vehicle object in a simulation image according to the input data from an actuation system, The ghost car processing means who makes it run the 2nd vehicle object in a simulation image based on the transit data currently prepared beforehand with said 1st vehicle object it runs with said game processing means, A distance calculation means to compute the distance in said three-dimension virtual field of the 1st [said] vehicle object which

runs with said game processing means, and said 2nd vehicle object it runs with said ghost car processing means, A distance distinction means to distinguish whether it is below the predetermined value to which the distance computed by said distance calculation means was set beforehand, When distinguished below a predetermined value by said distance distinction means, the technical-problem solution mold vehicle game equipment which has a translucent-ized means to make said 2nd vehicle object it runs with said ghost car processing means translucent-ize in a simulation image is offered.

[0008] Since the 2nd vehicle object is translucent-ized in a simulation image when the location of the 1st vehicle object it runs in the simulation image which expresses the three-dimension virtual field by actuation of a player approaches to the 2nd vehicle object and the distance below a predetermined value according to such a configuration, the field of view from the 1st vehicle object is not barred by the 2nd vehicle object.

[0009] Said distance distinction means distinguishes the distance of said 1st vehicle object and said 2nd vehicle object in two or more steps. Moreover, said translucent-ized means By translucent-izing said 2nd vehicle object according to the phase of the distance distinguished by said distance distinction means, the 2nd vehicle object is gradually translucent-ized as the distance of the 1st vehicle object and the 2nd vehicle object approaches.

[0010] Moreover, a data-logging means to record a series of input data used in order for said game processing means to make it run the 1st vehicle object in a simulation image for two or more minutes, From a series of input data for two or more minutes recorded by said data-logging means It has a transit data selection means to choose a series of input data as transit data for displaying said 2nd vehicle object. Said ghost car processing means By making it run said 2nd vehicle object by using as transit data a series of input data chosen by said transit data selection means It can be made to run other vehicle controlled according to the data inputted with actuation of many and unspecified of other players simultaneously, as the sensation of running a race with other vehicle is acquired, the interest of a player is raised, and it does not become the hindrance of transit actuation.

[0011] Moreover, the simulation image showing said three-dimension virtual field It is a thing showing said field of view from the 1st vehicle object it runs with said game processing means. Said distance distinction means According to the direction of a field of view from said 1st vehicle object, by distinguishing the distance of said 1st vehicle object and said 2nd vehicle object For example, since the 2nd vehicle object is translucent-ized according to distance with the 2nd vehicle object in each field-of-view direction when displaying a simulation image about each of the direction of a field of view of front and rear, right and left, Even if it is which direction of a field of view, a field of view is not barred by the 2nd vehicle object.

[0012] Moreover, the simulation image showing said three-dimension virtual field The 1st mode in which said field of view from the driver's seat of the 1st vehicle object it runs with said game processing means is expressed, The 2nd mode in which the field of view where said 1st vehicle object it runs with said game processing means is contained is expressed can be switched. Said distance distinction means According to whether said 2nd vehicle object is in the simulation image by any in in said 1st mode and said 2nd mode, by computing the distance of said 1st vehicle object and said 2nd vehicle object Since translucent-ization to the 2nd vehicle object is performed according to the field of view which the simulation image showing the three-dimension virtual field expresses Translucent-ization is performed so that a field of view may be appropriately barred by the 2nd vehicle object by neither in the 1st mode and the 2nd mode of the cases.

[0013] Moreover, it follows on transit of said 1st vehicle object by said game processing means. An object processing means to change the location fixed object prepared in the transit direction of said 1st vehicle object in a simulation image, A distance calculation means to compute the distance in said three-dimension virtual field of the 1st [said] vehicle object which runs with said game processing means, and said location fixed object which changes with said object processing means, A distance distinction means to distinguish whether it is below the predetermined value to which the distance computed by said distance calculation means was set beforehand, By having a translucent-ized means to make said location fixed object which changes with said object processing means translucent-ize in a simulation image, when distinguished below a predetermined value by said distance distinction means Since natural objects prepared around the course it runs, not only the 2nd vehicle object but a fixed position object, for example, the 1st vehicle object, such as a building and a tree, are translucent-ized, Since the field of view of the transit direction is not barred by the fixed position object, the situation of a course can be grasped more early.

[0014]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained with reference to a drawing.

[0015] Drawing 1 is drawing showing the appearance configuration at the time of applying the technical-problem solution mold vehicle game equipment concerning this operation gestalt to a car race game. The driver's seat 1 to which actuation of driving an automobile is performed is formed in technical-problem solution mold vehicle game equipment, and in the example shown in drawing 1 , two driver's seats 1 are formed so that two persons' player can enjoy a car race game simultaneously.

[0016] The carbon button panel 7 by which the carbon button for inputting various kinds of directions into a driver's seat 1 to technical-problem solution mold vehicle game [besides the shift lever 6 for changing the brake pedal 5 for braking the accelerator pedal 4 for accelerating the handle 3 for controlling the travelling direction of the sheet 2 with which a player sits down, and an automobile, and an automobile, and an automobile, and a shift] equipment was prepared is formed. Moreover, when a player sits on a sheet 2, the monitor 8 arranged at the upright type is formed in the location used as the windshield of an automobile.

[0017] The simulation scenery (image) of the three-dimension virtual field seen from the windshield of an automobile is displayed on a monitor 8. Thereby, a player can make it run the image (player ZUKA) of the self-vehicle displayed all over the three-dimension virtual field on a course by sitting down on the sheet 2 of a driver's seat 1, and operating a handle 3, an accelerator 4, a brake 4, a shift lever 6, etc.

[0018] Drawing 2 is the block diagram showing the system configuration of the technical-problem solution mold vehicle game equipment in this operation gestalt. This equipment reads the program recorded on various record media, and the function of a computer in which actuation is controlled by this program is carried, and it is realized.

[0019] As shown in drawing 1 , as for the technical-problem solution mold vehicle game equipment in this operation gestalt, RAM14, the program storing section 16, the data storage section 18, the three-dimension image-processing section 20, the I/O section 22, and the sound section 24 are connected to CPU10 through the bus 12. Moreover, a monitor 26 (monitor 8) is connected to the three-dimension image-processing section 20, the handle 28 which constitutes various actuation systems, a brake pedal 30, an accelerator pedal 32, carbon buttons 34, a shift lever (not shown), etc. are connected to the I/O section 22, and the loudspeaker 36 is connected to the sound section 24.

[0020] CPU10 realizes each function by reading into RAM14 the program corresponding to each function part stored in the program storing section 16, and performing it. Moreover, each function is realized by using the various data stored in the data storage section 18 if needed.

[0021] The three-dimension image-processing section 20 displays an object in a monitor 26 based on the indicative data of the object which should be displayed in the simulation image of the three-dimension virtual field which changes in connection with the program stored in the program storing section 16 being performed by CPU10. The three-dimension image-processing section 20 has the function made to display that the corresponding object is penetrating according to the value of the transparency parameter added to the indicative data of an object.

[0022] The sound section 24 makes voice output from a loudspeaker 36 based on the voice data which changes in connection with the program stored in the program storing section 16 being performed by CPU10.

[0023] In addition, the game processing section 40, the ghost car processing section 42, and the object processing section 44 are formed in the program storing section 16.

[0024] The game processing section 40 performs processing which makes it run player ZUKA

(1st vehicle object) showing the self-vehicle operated by the player in a simulation image according to the input data from an actuation system (a handle 28, a brake pedal 30, an accelerator pedal 32, shift-lever 6 grade) inputted through the I/O section 22.

[0025] The ghost car processing section 42 performs processing which makes it run the ghost car (2nd vehicle object) which expresses other vehicle with player ZUKA it runs by the game processing section 40 in a simulation image based on the transit data which were stored in the data storage section 18 and which are prepared beforehand. The function of transit data selection section 42a, distance calculation section 42b, distance distinction section 42c, and 42d of translucent-ized sections is included in the ghost car processing section 42. Transit data selection section 42a performs processing which chooses a series of input data from a series of input data for two or more minutes stored in the data storage section 18 as record transit data 52 (it mentions later) as transit data for displaying a ghost car. Distance calculation section 42b performs processing which computes the distance in the three-dimension virtual field of player ZUKA it runs by the game processing section 40, and the ghost car it runs by the ghost car processing section 42. Distance distinction section 42c can distinguish whether it is below the predetermined value to which the distance computed by distance calculation section 42b was set beforehand, and can distinguish the distance of player ZUKA and a ghost car in two or more steps. 42d of translucent-ized sections sets the transparency parameter added to the indicative data (car data) for displaying a ghost car as the value which shows translucent-ization in order to make a ghost car translucent-ize in a simulation image, when the distance of player ZUKA and a ghost car is distinguished by distance distinction section 42c below a predetermined value. Moreover, distance distinction section 42c can distinguish the distance of player ZUKA and a ghost car according to by any showing the field of view where the 1st mode of an account in which the field of view from the driver's seat of player ZUKA is expressed, and player ZUKA are contained in a simulation image in the 2nd mode it displays. In addition, it is distinguished by the three-dimension image-processing section 20 by setting up a transparency parameter, and the object based on an indicative data is displayed by the transmittance according to the value of a transparency parameter.

[0026] The object processing section 44 performs processing to which objects (location fixed object) prepared in the transit direction of player ZUKA, such as a building and a tree, are changed in a simulation image with transit of player ZUKA by the game processing section 40. The function of object distance calculation section 44a, object distance distinction section 44b, and object translucent-ized section 44c is included in the object processing section 44. Object distance calculation section 44a performs processing which computes the distance in the three-dimension virtual field of player ZUKA it runs by the game processing section 40, and the object which changes with the object processing sections 44. Object distance distinction section 44b can distinguish whether it is below the predetermined value to which the distance computed by object distance calculation section 44a was set beforehand, and can distinguish the distance of player ZUKA and an object in two or more steps. Object translucent-ized section 44c sets the transparency parameter added to the object data for displaying an object as the value which shows translucent-ization in order to make an object translucent-ize in a simulation image, when the distance of player ZUKA and an object is distinguished by object distance distinction section 44b below a predetermined value. In addition, it is distinguished by the three-dimension image-processing section 20 by setting up a transparency parameter, and the object based on an indicative data is displayed by the transmittance according to the value of a transparency parameter.

[0027] Moreover, the input transit data 50, the record transit data 52, the course data 54, etc. are stored in the data storage section 18.

[0028] The input transit data 50 are the group of data, such as the amount of treading in of the input data from an actuation system inputted through the I/O section 22, i.e., the actuation include angle of a handle 28, a brake pedal 30, and an accelerator pedal 32, and a condition of a shift lever, and the group of these data is serially stored for every predetermined unit time amount. It is used in order for the input transit data 50 to display player ZUKA by the game processing section 40, and the location (for example, a xyz coordinate value shows) in the

course in which it is made to run player ZUKA is computed.
[0029] After a car race game ends the record transit data 52, it is recorded when predetermined conditions are fulfilled and record data 52b which accompanies transit data 52a applicable to the input transit data 50 and this transit data 52a is contained. For example, it shall be the case where transit with the decided course is able to be attained by the shortest time amount as predetermined conditions while playing in the past. In this case, the access which records the input transit data 50 to the player shall be granted, and it shall be recorded according to the directions from a player. Under the present circumstances, the character strings (character string showing an initial etc.) of arbitration can be inputted as a library-name, and it can be referred to as record data 52b. Various kinds of data besides the transit time obtained when a car race game was performed besides a library-name can be included in record data 52b. Moreover, a series of input transit data for two or more minutes (a series of input data) are recordable on the record transit data 52 as transit data 52a.
[0030] The course data 54 are data about the course in which it is made to run player ZUKA and a ghost car in the simulation image showing the three-dimension virtual field, and contain course layout data 54a and object data 54b. Course layout data 54a is expressed by the sequence of the xyz coordinate value which is data which define the configuration of a course, for example, shows the center of a course. Object data 54b is data about the various objects (location fixed object) containing natural objects prepared around the course, such as a building and a tree, and contains the data in which a setting-out location is shown, the data showing the configuration of an object, etc.
[0031] Next, actuation of the technical-problem solution mold vehicle game equipment in this operation gestalt is explained.
[0032] The ghost car processing on which a ghost car is displayed into the simulation image which expresses the three-dimension virtual field during car race game activation is explained referring to the flow chart shown in drawing 3 first. Ghost car processing is performed in the case of the car race game for example, by time attack mode. Time attack mode is what competes for the time amount which transit of the course which was run player ZUKA and was beforehand decided by actuation of one player takes. In that case, transit data are chosen according to the directions from a player from the record transit data 52 containing transit data 52a for two or more minutes stored in the data storage section 18 by the function of transit data selection section 42a. The ghost car it runs based on this selected transit data can be displayed. Transit data 52a for making it run a ghost car displays the list of the library-names in record data 52b which accompanies each of transit data 52a for two or more minutes (and transit time), and is made to choose it from the inside as arbitration with a player.
[0033] An example of the simulation image which expresses the three-dimension virtual field displayed in a monitor 26 to drawing 4 is shown. In the example shown in drawing 4 , player ZUKA it runs when a player operates each part of an actuation system, and the ghost car it runs based on transit data 52a chosen from the list of library-names are set up on the course set up based on the course data 54. In addition, drawing 4 is a simulation image by the mode (the 2nd mode (three grammatical person)) in which the field of view where player ZUKA it runs by the game processing section 40 is contained is expressed. Moreover, the layout of a course besides time-related [, such as a transit time currently recorded, a lap time, and the present transit time,], the travel speed in the present three-dimension virtual field, the present shift condition changed by actuation of a shift lever 6 are displayed on a simulation screen.
[0034] Player ZUKA runs on a course in a simulation image based on the input data inputted through the I/O section 22 by operating an actuation system by the player. On the other hand, a ghost car is displayed on a course in a simulation image with player ZUKA based on the record transit data 52.
[0035] In the meantime, the ghost car processing section 42 acquires the transit data inputted through the I/O section 22, and transit data 52a of the record transit data 52 (step A1), and computes each current position of player ZUKA on a course, and a ghost car (step A2). For example, the location on the course in which it is expressed with a xyz coordinate value by course layout data 54a is computed with a xyz coordinate value based on the input data from an

actuation system.

[0036] Distance calculation section 42b computes both distance based on each current position of this player ZUKA and a ghost car (step A3). A distance here may be the distance in the travelling direction of a course, and may be the distance of the center to center of each setting-out location.

[0037] Here, it distinguishes whether distance distinction section 42c has become below the predetermined value to which both distance is set beforehand (step A4). That is, it distinguishes whether the distance of player ZUKA and a ghost car is in the condition of having fully approached.

[0038] When both distance is not below a predetermined value, the ghost car processing section 42 sets up the value of a transparency parameter so that it may have a stereo in a simulation image, and displays a ghost car according to the same gestalt (gestalt which is not penetrated) as player ZUKA.

[0039] On the other hand, when both distance is below a predetermined value, distance distinction section 42c distinguishes gradually whether it is [the level of both distance, i.e., how much,] separated (step A5). For example, distance distinction section 42c distinguishes the level (phase) of distance by preparing beforehand two or more set points (threshold) used for distinction of distance, and comparing each set point with the distance found by step A3.

[0040] 42d of translucent-ized sections sets up the transparency parameter added to the indicative data of a ghost car according to the distance level (phase) distinguished by distance distinction section 42c (step A6).

[0041] Thereby, in case the three-dimension image-processing section 20 displays a ghost car into a simulation image, it is displayed in a monitor 26 according to the gestalt penetrated according to the value which a transparency parameter shows. Since player ZUKA approached the ghost car and below the predetermined value, the half rarefaction of the ghost car is carried out, and it is expressed as the simulation image shown in drawing 4 .

[0042] The situation of translucent-izing according to distance level is shown in drawing 5 . As for the inside PC of drawing 5 , the location of player ZUKA is expressed and GC 1-4 expresses the location of a ghost car, respectively. For example, the location of a ghost car is GC1, when distance with PC is over the predetermined value, it is substantiated and displayed, but when distance with PC becomes the location of GC2 below a predetermined value, it translucent-izes and is displayed. Furthermore, when it is in the location of GC3 near [GC /2] PC, transparency is raised further, and it translucent-izes and is displayed.

[0043] In addition, although the simulation image showing the three-dimension virtual field shown in drawing 4 is a simulation image by the mode (the 2nd mode (three grammatical person)) in which the field of view where player ZUKA is contained is expressed, it can also display the simulation image by the mode (the 1st mode (one grammatical person)) in which the field of view from the driver's seat of player ZUKA is expressed.

[0044] In displaying the simulation image by the 1st mode, the display position of the ghost car in an image also differs also from the distance of the ghost car which comes to bar the field of view from player ZUKA unlike the case in the 2nd mode. Then, distance calculation section 42b can distinguish distance according to the mode by changing the criteria which distinguish the predetermined value or distance level (phase) for judging the distance of player ZUKA and a ghost car according to whether the simulation image shall be shown by any between the 1st mode and the 2nd mode. Moderate translucent-ization is performed to a ghost car, and it can avoid barring a field of view also in which simulation image in the 1st mode and the 2nd mode by this.

[0045] Moreover, in the example of the simulation image shown in drawing 4 , although the direction of a field of view is in agreement with the transit direction of player ZUKA, when displaying a simulation image with the 1st mode, the image of fields of view other than the front from the driver's seat of player ZUKA (back right and left etc.) can be displayed into an image. For example, it can be made to display as a simulation image showing the field of view behind player ZUKA reflected by the rearview mirror or the room mirror. The distance of player ZUKA and a ghost car can be distinguished also in this case, and it can translucent-ize according to that distance. For example, when a ghost car has distance with a PC like GC4 shown in drawing 5 in the location below a predetermined value, it can avoid barring with a ghost car also about a back field of view by making this ghost car translucent-ize.

[0046] In addition, in fields of view other than the front from the driver's seat of player ZUKA, the distance of the ghost car which comes to bar the field of view from player ZUKA also differs. Then, distance calculation section 42b can distinguish distance according to the direction of a field of view by changing the criteria which distinguish the predetermined value or distance level (phase) for judging the distance of player ZUKA and a ghost car according to whether a simulation image is the thing of which direction of a field of view from player ZUKA. Moderate translucent-ization is performed to a ghost car, and it can avoid barring a field of view also in the simulation image of which direction of a field of view by this.

[0047] Next, the object processing on which an object is displayed into the simulation image which expresses the three-dimension virtual field during car race game activation is explained, referring to the flow chart shown in drawing 6 .

[0048] By operating an actuation system by the player, the object processing section 44 acquires the input data inputted through the I/O section 22 (step B1), and computes the current position of player ZUKA on a course (step B-2). For example, the location on the course in which it is expressed with a xyz coordinate value by course layout data 54a is computed with a xyz coordinate value based on the input data from an actuation system.

[0049] The object processing section 44 distinguishes the object which should be made applicable to a display into a simulation image also based on the current position of player ZUKA based on object data 54b of the course data 54 (step B3), and acquires the object data of the corresponding object (step B4).

[0050] Object distance calculation section 44a computes the distance of the location to the course of the object displayed in a simulation image, and the location of player ZUKA (step B5). A distance here may be the distance in the travelling direction of a course, and may be the distance of the center to center of each setting-out location.

[0051] Here, it distinguishes whether object distance distinction section 44b has become below the predetermined value to which both distance is set beforehand (step B6). That is, it distinguishes whether the distance of player ZUKA and an object is in the condition of having fully approached.

[0052] When both distance is not below a predetermined value, the object processing section 44 sets up the value of a transparency parameter so that it may have a stereo in a simulation image, and displays an object according to the same gestalt (gestalt which is not penetrated) as player ZUKA.

[0053] On the other hand, when both distance is below a predetermined value, object distance distinction section 44b distinguishes gradually whether it is [the level of both distance, i.e., how much,] separated (step B7). For example, object distance distinction section 44b distinguishes the level (phase) of distance by preparing beforehand two or more set points (threshold) used for distinction of distance, and comparing each set point with the distance found in step B5.

[0054] Object translucent-ized section 44c sets up the transparency parameter added to the indicative data of an object according to the distance level (phase) distinguished by object distance distinction section 44b (step B8).

[0055] Thereby, in case the three-dimension image-processing section 20 displays an object into a simulation image, it is displayed in a monitor 26 according to the gestalt penetrated according to the value which a transparency parameter shows.

[0056] Signs that an object is translucent-ized according to distance level with player ZUKA are shown in drawing 7 . The simulation image shown in drawing 7 shows the example to which the object showing a tree is set along with the course of the left curve player ZUKA runs.

[0057] In drawing 7 (a), since the distance of an object and player ZUKA is over the predetermined value, it is displayed that an object has a stereo. Furthermore, if player ZUKA runs on a course and the distance of an object and player ZUKA becomes below a predetermined value as shown in drawing 7 (b), the half rarefaction of the object will be carried out and it will be displayed. Thereby, the point of the course of a left curve can check mostly through an object. Furthermore, if player ZUKA runs on a course and an object and player ZUKA approach, it can grasp thoroughly, without an object's being displayed by more highly transparent translucent-ization, and the point of a course having a field of view barred by the object as shown in drawing 7 (c). In addition, when shown in drawing 7 (c), it may be made to carry out the rarefaction of the object thoroughly.

[0058] Thus, when it constitutes the three-dimension virtual field by the field of view from player ZUKA by translucent-izing a ghost car and various objects based on distance with player ZUKA by which transit is controlled according to actuation of a player, it is lost that a field of view will be barred and expressed by other vehicle and various objects. In a car race game, the surrounding situation of a self-vehicle, the situation (degree of the curve of a course) of the transit direction, etc. are gained more early, and since it becomes acquirable [good results] (transit in a short time) by performing actuation corresponding to it to timely, a possibility that the satisfactory actuation of a player may be attained and interest may be dampened disappears by not barring a field of view. Moreover, since it is not necessary to make a ghost car and other objects approach with player ZUKA, or to make it small, the force of the simulation screen expressing a car race game is not lost.

[0059] In addition, although explanation of ghost car processing shows the example as which only one ghost car was displayed into the simulation image, two or more ghost cars may be simultaneously displayed with player ZUKA. In this case, translucent-ization shall be performed for every ghost car.

[0060] Moreover, although aimed at the technical-problem solution mold vehicle game equipment of an arcade mold game currently installed in the game center as shown in drawing 1 etc. in the explanation mentioned above, it is also possible to apply to game equipment for home use. In this case, it will be substituted for each part of an actuation system by the controller by which various kinds of carbon buttons were prepared, and will be substituted for a monitor 26 and a loudspeaker 36 on common television.

[0061] Moreover, as a program which a computer can be made to execute, the technique indicated in the operation gestalt mentioned above can be written in record media, such as CD-ROM and semiconductor memory, and various equipments can be provided with it. Moreover, it is also possible to transmit by communication media and to provide for various equipments. The computer which realizes this equipment performs processing mentioned above by reading the program recorded on the record medium, or receiving a program through communication media, and controlling actuation by this program.

[0062]

[Effect of the Invention] It is under [simulation image / which expresses the three-dimension virtual field according to this invention as explained in full detail above] setting. The location of the vehicle object (player ZUKA) of 1 it runs by actuation of a player When it approaches to the distance below the 2nd vehicle object or a location fixed object, and a predetermined value Since the 2nd vehicle object or location fixed object is translucent-ized in a simulation image, Since the field of view from the 1st vehicle object is not barred by other objects, a player can grasp a play situation easily and the interest over a game is not dampened.

[Translation done.]

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2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] Drawing showing the appearance configuration at the time of applying the technical-problem solution mold vehicle game equipment concerning this operation gestalt to a car race game.
[Drawing 2] The block diagram showing the system configuration of the technical-problem solution mold vehicle game equipment in this operation gestalt.
[Drawing 3] The flow chart explaining the ghost car processing on which a ghost car is displayed into the simulation image showing the three-dimension virtual field.
[Drawing 4] Drawing showing an example of the simulation image showing the three-dimension virtual field displayed in a monitor 26.
[Drawing 5] Drawing for explaining the situation·of translucent-izing according to distance level.
[Drawing 6] The flow chart explaining the object processing on which an object is displayed into the simulation image showing the three-dimension virtual field.
[Drawing 7] Drawing for explaining signs that an object is translucent-ized according to distance level with player ZUKA.
[Description of Notations]
1 --- Driver's seat
2 --- Sheet
3 28 --- Handle
4 32 --- Accelerator pedal
5 30 --- Brake pedal
6 --- Shift lever
7 --- Carbon button panel
8 26 --- Monitor
10 --- CPU
12 --- Bus
14 --- RAM
16 --- Program storing section
18 --- Data storage section
20 --- Three-dimension image-processing section
22 --- I/O section
24 --- Sound section
36 --- Loudspeaker
40 --- Game processing section
42 --- Ghost car processing section
42a --- Transit data selection section
42b --- Distance calculation section
42c --- Distance distinction section
42d --- Translucent-ized section
44 --- Object processing section
44a --- Object distance calculation section

44b — Object distance distinction section
44c — Object translucent-ized section
50 — Input transit data
52 — Record transit data
52a — Transit data
52b — Record data
54 — Course data
54a — Course layout data
54b — Object data

[Translation done.]

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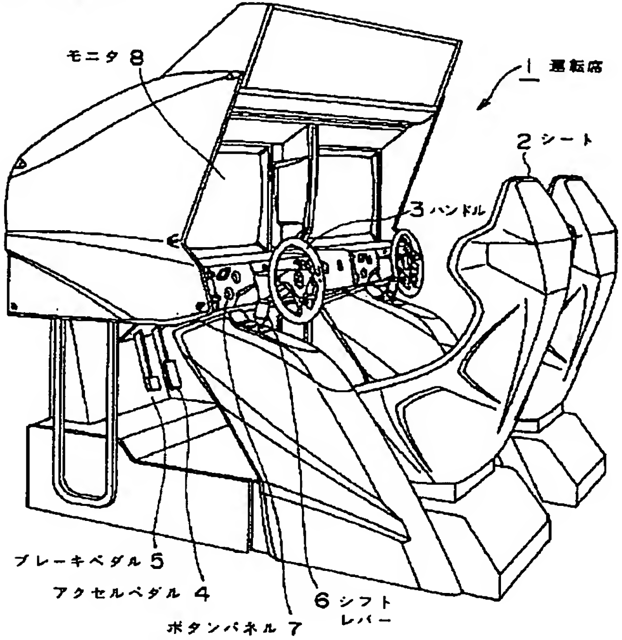
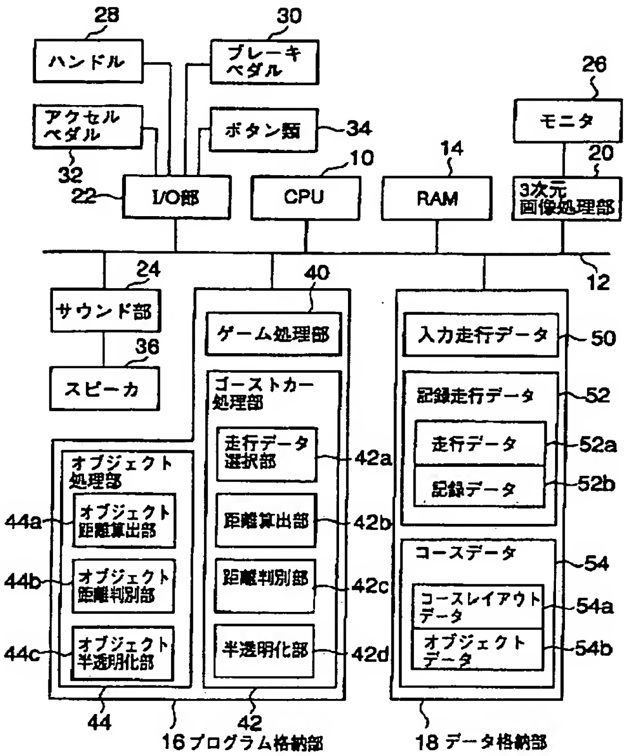
DRAWINGS

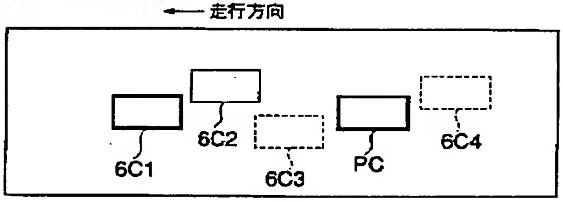
[Drawing 1]


モニタ 8
1 運転席
2 シート
3 ハンドル
ブレーキペダル 5
アクセルペダル 4
6 シフトレバー
ボタンパネル 7

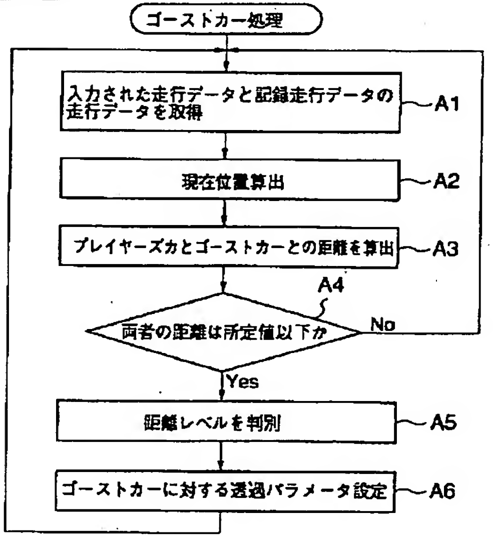
[Drawing 2]


28
ハンドル
30
ブレーキペダル
26
モニタ
アクセルペダル
32
ボタン類
34
10
14
20
22
I/O部
CPU
RAM
3次元画像処理部
12
24
サウンド部
36
スピーカ
40
ゲーム処理部
ゴーストカー処理部
走行データ選択部
42a
距離算出部
42b
距離判別部
42c
半透明化部
42d
入力走行データ
50
記録走行データ
52
走行データ
52a
記録データ
52b
コースデータ
54
コースレイアウトデータ
54a
オブジェクトデータ
54b
オブジェクト処理部
オブジェクト距離算出部
44a
オブジェクト距離判別部
44b
オブジェクト半透明化部
44c
44
42
16 プログラム格納部
18 データ格納部

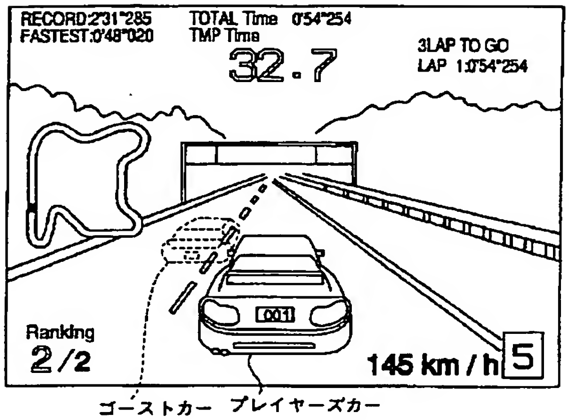
[Drawing 5]


走行方向
6C1
6C2
6C3
PC
6C4

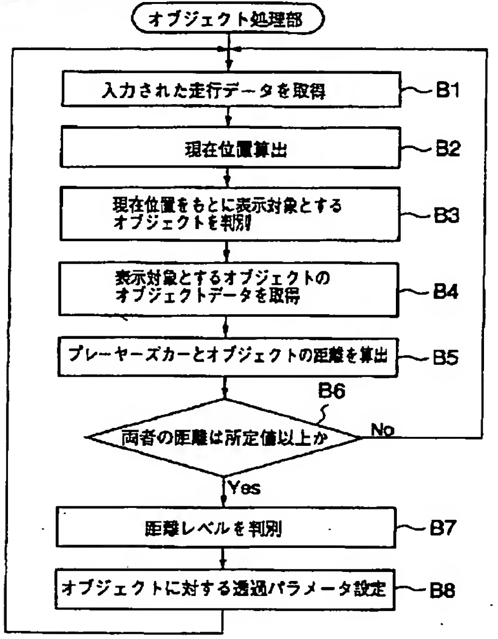
[Drawing 3]


ゴーストカー処理
入力された走行データと記録走行データの走行データを取得
A1
現在位置算出
A2
プレイヤーズカとゴーストカーとの距離を算出
A3
A4
両者の距離は所定値以下か
No
Yes
距離レベルを判別
A5
ゴーストカーに対する透過パラメータ設定
A6

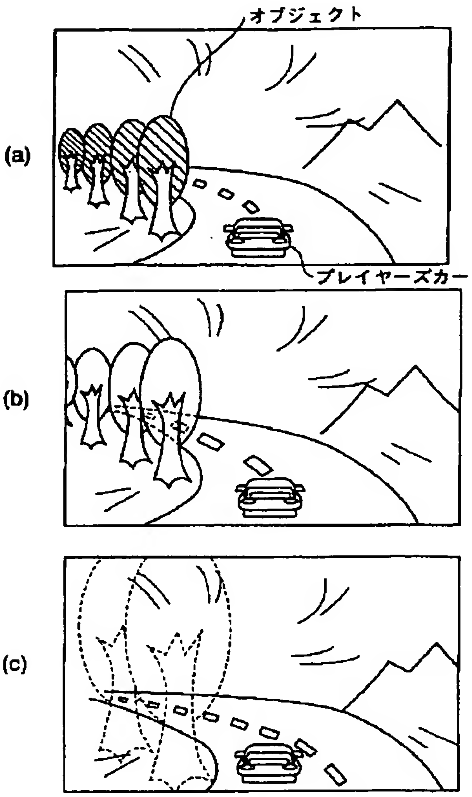
[Drawing 4]


RECORD:2'31"285
FASTEST:0'48"020
TOTAL Time 0'54"254
TMP Time
32.7
3LAP TO GO
LAP 1:0'54"254
001
Ranking
2/2
145 km / h
5
ゴーストカー
プレイヤーズカー

[Drawing 6]


オブジェクト処理部
入力された走行データを取得
B1
現在位置算出
B2
現在位置をもとに表示対象とするオブジェクトを判別
B3
表示対象とするオブジェクトのオブジェクトデータを取得
B4
プレーヤーズカーとオブジェクトの距離を算出
B5
B6
両者の距離は所定値以上か
No
Yes
距離レベルを判別
B7
オブジェクトに対する透過パラメータ設定
B8

[Drawing 7]


オブジェクト
(a)
プレイヤーズカー
(b)
(c)

[Translation done.]